40

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Freezing Male Sperm for Future Might Contribute to Genetic Improvement

By Joshua Lederberg

"OF COURSE WE—that is humanity—will take our biological evolution into our own hands, and try to steer its direction. And are there not means already by which we can influence our heredity and other means that we are likely to gain?

Science and Man

"Some detractors may call the use of them tampering, tinkering, or even blasphemy. But this attitude is like that of the recalcitrants who still hold out against whatever foods, remedies or measures they consider 'unnatural,' and like that of the Amish who even today consider higher education to be a perversion of the mind.

"It is of all life's essence to utilize, wherever possible, more and more effective means of servicing itself. That implies doing things in ways that were previously unnatural for it. Moreover the rise of man to ascendancy over all other forms of life has resulted from his having been so unusually successful in this very respect."

THESE REMARKS are quoted from "What Genetic Course Will Man Steer?" by Herman Joseph Muller, America's most renowned geneticist, who died April 5, aged 76, in Bloomington, Ind. It was his last paper, delivered last fall at the International Congress of Genetics in Chicago.

His program of genetic betterment was based on the faith that genetic constitution plays a significant, not necessarily an exclusive, role in developing personality traits that might be essential for survival of the species. Above all, he put cooperativeness, followed by intelligence, joy of life, empathy, humility, fortitude, curiosity, physical vigor, and so on.

He did not insist that the genetic components of these traits necessarily outweighed the environmental influences, and he would have spared nothing to learn and apply the child-rearing and later educational techniques that could facilitate the most positive development. But if genetic betterment can contribute, how can we refrain from seeking it?

As the first step in genetic betterment, he advocated rational germinal choice. An idealistically motivated group would designate outstanding men and would arrange to save frozen samples of their sperm. By deferring the large-scale use of any of these samples until some decades after the death of the donor, durable appreciation rather than momentary fascination would dominate the rational choice.

To begin with, the use of pre-evaluated, stored sperm for artificial insemination would be advertised mainly to couples with male-sterility. Many of these already practice artificial insemination from secret, almost random donors. If this limited experiment gave encouraging results, Muller envisaged that other families would be quite eager to foster at least one child from a historically outstanding donor with genetic qualities of particular appeal to that family.

IT IS HARD to criticize Muller's proposal on strictly biological grounds. Our knowledge of the genetics of personality is far too thin to give it solid justification, but the scheme could hardly do any worse than our existing mating system. The main criticism is that it suffers from an excess of idealism. Once germinal choice becomes fashionable, even if initially only within the intellectual elite, how long will it remain rational?

Nor can it then long remain free, governmental regulation being quite essential to keep the industry free from misrepresentation in advertising, premature release of sperm, undue economic coercion, incestuous combinations and so on.

It has also been argued that germinal choice may interfere with the healthiest family life; however, where sterility or genetic disease has been plainly diagnosed, germinal choice could even vitalize an otherwise hopeless constellation.

On the whole, however, a society able to manage germinal choice as an institution may already be wise enough not to need it. Muller's proposal nevertheless brings to a focus many of the fundamental difficulties of any rational system of human biology.

A central core in Muller's thinking about the human germ plasm survives the most satirical criticism. His most seminal idea is to conserve rare genetic information. Our social wisdom does not yet tell us how to use such information.

But this should not deter us from preserving unusual examples, good or bad, for future research, if not application, just as we seek and save seeds of rare plants for scientific agriculture. From a technical standpoint, it would be well to deep-freeze some small samples of other tissues as well as sperm, to help future investigators to learn how hereditary disease or even genius is encoded in DNA.

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